Remarks

By this Response, no claims have been amended, cancelled or newly added. Thus, claims 1-3, 6-46 and 48-53 remain pending. Reconsideration and allowance of all the claims pending in the application are respectfully requested in view of the following comments.

The Office Action fails to properly provide an explanation as to how the applied references allegedly disclose or teach the subject matter of, for example, rejected claims 6-18, 20-39, 40-45 and 48-53. *See* 37 C.F.R. §1.104(c)(2) ("When a reference is complex or shows or describes inventions other than that claimed by the applicant, the particular part relied on must be designated as nearly as practicable. The pertinence of each reference, if not apparent, must be clearly explained and each rejected claim specified."); Ex parte Rozzi, 63 USPQ2d 1196, 1200 (BPAI 2002) (Board refuses to adjudicate where examiner's work is incomplete); Ex parte Schricker, 56 USPQ2d 1723, 1725 (BPAI 2000) ("The examiner has left applicant and the Board to guess as to the basis of the rejection ... We are not good at guessing; hence, we decline to guess."); Ex parte Braeken, 54 USPQ2d 1110, 1113 (BPAI 1999) (appeal is "not ripe" because of omissions by examiner). If the Examiner wants to sustain this rejection, then compliance with 37 CFR §1.104(c)(2) is respectfully requested.

Claims 1, 19 and 46 were rejected under 35 U.S.C. §102(e) as allegedly being anticipated by U.S. Patent Application Publication No. 2005/0041226 to Tanaka *et al.* ("Tanaka"). Applicant respectfully traverses this rejection for at least the following reasons.

Applicant respectfully submits that the cited portions of Tanaka fail to disclose, teach or render obvious a lithographic apparatus comprising, *inter alia,* a joint between an element of the projection system and its support comprises an inorganic layer comprising (i) metal, (ii) ceramic, (iii) glass, or (iv) any combination of (i) – (iii), and comprises glue protection, as recited by claim 1. Similarly, the cited portions of Tanaka fail to disclose, teach or render obvious an immersion projection system manufacturing method comprising, *inter alia,* joining an element of a projection system, that in use in a lithographic apparatus comes in contact with a liquid, with its support using an inorganic layer comprising (i) metal, (ii) ceramic, (iii) glass, or (iv) any combination of (i) – (iii), and glue protection, direct bonding, or both, as recited by claim 46.

Tanaka is directed to a projection exposure apparatus. *See*, Abstract of Tanaka. In particular, cited portions of Tanaka disclose that the exposure apparatus includes a barrel LB that houses various elements including lens elements L1 to L16. Moreover, the cited portions of Tanaka describes that variations or fluctuations of transmittance may be caused by various impurities including metallic and ceramic material of which the barrel LB is composed. Specifically, this passage of Tanaka states:

> [0258] A variation or fluctuation of transmittance may be caused by attachment of various impurities to the surfaces of the optical elements (e.g., lens elements L1 to L16, parallel flat panels P1, P2, etc.), which may be derived from ***various substances present inside the barrel LB, the various substances including***, for example, materials constituting the lens elements, coating materials for coating the surfaces of the lens elements, adhesive for joining the lens elements to the lens frames, paints for preventing of reflection on coarsely polished surfaces of the lens elements, ***metallic and ceramic materials constituting the barrel***, etc. Therefore, in order to reduce the variation in transmittance due to the attachment of such impurities, it is preferred that such impurities are removed, for example, by means of a chemical filter, an electrostatic filter or the like, while the dry nitrogen gas with its temperature controlled is forcibly flown inside the barrel LB by means of the gas supply unit 270. (emphasis added).

See, paragraph [0258] of Tanaka. The cited metallic and ceramic materials of Tanaka are merely described in terms of the composition of the barrel LB. The cited metallic and ceramic materials of Tanaka are not described as being part of a layer at a joint between the lenses and their lens frames, let alone part of an inorganic layer at the joint. Therefore, the cited portions of Tanaka do not disclose that the lens elements L1 to L16 and their respective support structures include a joint that comprises an inorganic layer comprising (i) metal, (ii) ceramic, (iii) glass, or (iv) any combination of (i) – (iii), and comprises glue protection.

Thus, the cited portions of Tanaka do not disclose, either expressly or inherently, teach or render obvious all the features of claims 1 and 46. Therefore, claims 1 and 46 are allowable. Claim 19 depends from and recites additional features from claim 1. Therefore, claim 19 is allowable at least by virtue of its dependence on claim 1, and for the additional features it recites.

Accordingly, Applicant respectfully request that the rejections of claim 1, 19 and 46 be withdrawn.

Claims 2, 3, 6-18, 20-39, 41-45, and 48-53 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Tanaka. Applicant respectfully traverses this rejection for at least the following reasons.

As discussed above, the cited portions of Tanaka do not disclose, teach or render obvious claims 1 and 46. Further, Applicant submits that the cited portions of Tanaka do not disclose, teach, or render obvious a lithographic apparatus comprising, *inter alia*, a fluid tight joint between an element of the projection system and its support comprises a direct bond by which molecules of the element and its support chemically interact, as recited by claim 20, a lithographic apparatus comprising, *inter alia*, a projection system configured to project the patterned beam onto a target portion of the substrate, the projection system having a lens, a lens support and an inorganic material providing a fluid tight seal between the lens and the lens support wherein the seal was made without heating, as recited by claim 38, and a lithographic apparatus comprising, *inter alia*, a direct bond, by which molecules of the lens and the lens support chemically interact, providing a fluid tight seal between the lens and the lens support, as recited in claim 42.

As conceded by the Office Action, Tanaka does not disclose a liquid supply system. [Office Action, page 2]. The Office Action then alleges that "it is known in this field that a non-immersion exposure apparatus may adapted so as to be used as an immersion lithography apparatus." [Office Action, page 2]. Finally, the Office Action concludes "[i]n view of the advantages that immersion lithography offers in resolution, one of ordinary skill in the art would be motivated to convert [Tanaka] into an immersion lithography apparatus." [Office Action, page 2]. Applicant respectfully disagrees.

Applicant submits that the Office Action has not established the requisite and proper analysis as to why one of ordinary skill in the art would modify the cited elements of Tanaka to be operable in an immersion lithography environment in the manner claimed. *See KSR Int'l. Co. v. Teleflex, Inc.*, No. 04-1350, slip opinion at page 14 (U.S. Apr. 30, 2007) (a determination, with supporting evidence, must be made as to "whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. To facilitate review, this analysis should be made explicit"). Instead, the Office Action merely offers a conclusory statement that the resolution benefits of immersion lithography would motivate one of ordinary skill in the art to modify Tanaka to operate in such an environment, which Tanaka does not disclose. This is clearly inadequate under the Supreme Court's *KSR* decision since the Office Action cites absolutely nothing which supports such a conclusion.

In addition, a mere statement that a purported modification allows a particular capability is not a sufficient basis for an obviousness determination. Absent a teaching within the references themselves, or in the knowledge generally available to one of ordinary skill in the art, suggesting a desirability of applying Tanaka's exposure apparatus in an immersion environment and in the particular manner posited by the Office Action, the purported modification is legally incapable of supporting an obviousness determination.

Moreover, the Office Action has provided no teaching or technical basis to establish that the adhesive for joining the lens elements to the lens frames in Tanaka are involved in or could be modified to be "a fluid tight joint" as recited by claim 20 or "a fluid tight seal" as recited by claims 38 and 42. Indeed, the cited portions of Tanaka make no mention of using the lens in, for example, a liquid or other fluid environment much less the possibility of, for example, liquid or other fluid entering between the lens and the support.

Moreover, even if the cited portions of Tanaka were to disclose or teach the fluid tight joint or seal of claims 20, 38 and 42, the Office Action makes no reference in Tanaka that the asserted Tanaka adhesive involves molecules of the lens and the support chemically interacting and thus the cited portions of Tanaka fail to disclose or teach a joint that comprises a direct bond by which molecules of the element and its support chemically interact as recited in claim 20. Further, the Office Action makes no reference in Tanaka that the asserted Tanaka lenses and lens frames have an inorganic material providing a seal between the lens and the lens support wherein the seal was made without heating adhesive, as recited in claim 38. The Office Action also makes no reference in Tanaka that the asserted Tanaka lenses and lens frames have a direct bond, by which molecules of the lens and the lens support chemically interact, providing a seal between the lens and the lens support, as recited in claim 42.

Therefore, Applicant respectfully submits that a prima *facie case* of obviousness has not established and that the cited portions of Tanaka, fail to disclose, teach or render obvious each and every element recited by claims 1, 20, 38, 42 and 46. Claims 2, 3, 6-18, 21-37, 39, 41, 43-45 and 48-53 depend respectively from claims 1, 20, 38, 42 and 46 and are, therefore, patentable for at least the same reasons provided above regarding claims 1, 20, 38, 42 and 46 respectively, and for the additional features recited therein. Thus, Applicant respectfully requests that the rejections of claims 2, 3, 6-18, 20-39, 41-45 and 48-53 under §103(a) over Tanaka be withdrawn and the claims be allowed.

All rejections have been addressed. It is respectfully submitted that the present application is in condition for allowance, and a notice to that effect is earnestly solicited. Should there be any questions or concerns regarding this application, the Examiner is invited to contact the undersigned at the below-listed telephone number.

Please charge any fees associated with the submission of this paper to Deposit Account Number 033975. The Commissioner for Patents is also authorized to credit any over payments to the above-referenced Deposit Account.

Respectfully submitted,

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